Documentation from

Maine Department of Agriculture's Board of Pesticide Control

PAUL R. LEPAGE
GOVERNOR

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION AND FORESTRY
BOARD OF PESTICIDES CONTROL
28 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0028

WALTER E. WHITCOMB
COMMISSIONER

HENRY JENNINGS
DIRECTOR

March 29, 2013

Maine Department of Environmental Protection
Bureau of Land & Water Quality/Division of Water Quality Management
Attn: Gregg Wood, P.E. Senior Environmental Engineer-Industrial /Municipal Licensing
17 State House Station
Augusta, Me., 04333-0017

RE: Documentation of Maine registered pesticides for control of algae in Auburn Lake

Dear Mr. Wood:

The following pesticides are registered for use in Maine for control of algae in natural water bodies.

- EPA reg. No. 56576-1, Copper Sulfate Crystals
- EPA Reg. No. 81882-2, Triangle Brand Copper Sulfate Crystal

Quimag Quimicos Aguila Copper Sulfate Crystal, EPA Reg. No. 73385-1, is currently not registered; however, should the need arise for this product, the registrant will be required to obtain Maine registration prior to use.

There are no additional conditions set forth by the Board of Pesticides Control, other than the state container label must be followed and application made by a Maine licensed applicator.

Sincerely,

Mary E. Tomlinson
Pesticides Registrar/Water Quality Specialist
Maine Board of Pesticides Control

AQUATIC CONTROL TECHNOLOGY
POND AND LAKE MANAGEMENT SPECIALISTS

March 29, 2013

Mary E. Tomlinson
Pesticide Registrar/Water Quality Specialist
Maine Board of Pesticides Control
28 State House Station
Augusta, ME 04333

Re: Lake Auburn – Proposed Copper Sulfate Product for 2013 Contingency Treatment Program

Dear Ms. Tomlinson:

At the request of Sid Hazelton, P.E., of Auburn Water & Sewerage Districts, we are providing you with information on the brand of Copper Sulfate Algaecide that we plan to use at Lake Auburn in 2013 in the event that treatment is required and requested.

Based on what is available from our local supplier at the time treatment is requested, we will use one of the two products listed below:

COPPER SULFATE CRYSTALS

EPA Registration Number: 56576-1 ME Product Number: 2009002484
Registration Year: 2013

Percent	Active Ingredient
99.0000	Copper sulfate pentahydrate (24401)

Company Number: 456
CHEM ONE, LTD
14140 WESTFAIR EAST DRIVE
HOUSTON TX 77041

TRIANGLE BRAND COPPER SULFATE CRYSTAL

EPA Registration Number: 81882-2 ME Product Number: 2009004986
Registration Year: 2013

Percent	Active Ingredient
99.0000	Copper sulfate pentahydrate (24401)

Company Number: 854
FREEPORT-MCMORAN SIERRITA INC.
P.O. BOX 527
GREEN VALLEY AZ 85622

QUIMAG QUIMICOS AGUILA COPPER SULFATE CRYSTAL
EPA Registration Number: 73385-1

We will make sure that the product used is registered in the State of Maine. Please feel free to contact me if you have any questions or need any additional information.

Sincerely,

AQUATIC CONTROL TECHNOLOGY

Marc D Bellaud

Marc D. Bellaud
President/Aquatic Biologist

CC: Sid Hazelton, P.E., Auburn Water & Sewerage Districts

81882-2 7/27/2010 1/11

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

OFFICE OF
CHEMICAL SAFETY AND
POLLUTION PREVENTION

JUL 27 2010

Ms. Peggy Galloway
Freeport-McMoran Sierrita Inc.
c/o Landis International, Inc, Agent For
PO Box 5126
Valdosta, GA 31603-5126

Dear Ms. Galloway:

Subject: Triangle Brand Copper Sulfate Crystal
EPA Registration No. 81882-2
EPA Decision Number 432783
Label Amendment – PRN 2001-1
Your Application Dated 2/5/2010

The amended label referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act as amended is acceptable.

One copy of the label stamped "Accepted" is enclosed for your records. This label supersedes all labels previously accepted for this product. Please submit one copy of the final printed label before the product is released for shipment.

If you have any questions, please contact Janet Whitehurst by phone at (703) 305-6129 or via email at whitehurst.janet@epa.gov.

Sincerely,

Tony Kish
Product Manager (22)
Fungicide Branch
Registration Division (7504P)

Enclosure

2/11

TRIANGLE BRAND

COPPER SULFATE CRYSTAL

FOR CONTROL OF WEEDS, ALGAE, SNAILS, AND MICROSCOPIC ORGANISMS IN IMPOUNDED WATER SOURCES (e.g., TANKS, RACEWAYS, PONDS, LAKES, AND RESERVOIRS)

ACTIVE INGREDIENT:
Copper sulfate pentahydrate*.....99.0%
OTHER INGREDIENTS.....1.0%
TOTAL.....100.0%

*Metallic copper equivalent 25.2%

Copper sulfate pentahydrate/CAS No. 7758-99-8: sulfuric acid, copper (2+)salt(1:1)/ CAS No. 7758-98-7;Water/CAS No. 7732-18-5

KEEP OUT OF REACH OF CHILDREN

DANGER/PELIGRO

Si usted no entiende la etiqueta, busque a alguien para que se la exlique a usted en detalle.
(If you do not understand this label, find someone to explain it to you in detail.)

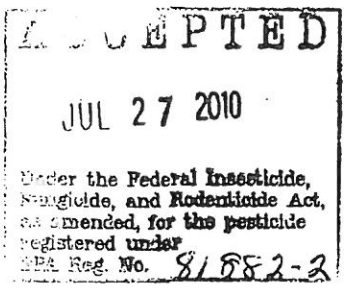
FIRST AID	
If in Eyes	• Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
If Swallowed	• Call a poison control center or doctor immediately for treatment advice. • Have a person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by the poison control center or doctor. • Do not give anything by mouth to an unconscious person.
If on Skin or Clothing	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for further treatment advice.
If Inhaled	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. • Call a poison control center or doctor for treatment advice.
Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact CHEMTREC at 1-800-424-9300 for emergency medical treatment information.	
NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage.	
See side panel for additional precautionary statements.	

EPA Reg. No. 81882-2

EPA Est. No. 081882-AZ-001

Net Weight: 50 Lbs/22.68 Kg.

Manufactured By:
FREEPORT-MCMORAN SIERRITA INC.
P. O. Box 527
Green Valley, AZ 85622-0527



PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS
DANGER/PELIGRO

Corrosive. Causes irreversible eye damage. Avoid contact with skin or clothing. May be fatal if swallowed. Do not get in eyes, skin, or on clothing. Wear protective eyewear (goggles, face shield, or safety glasses). Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse. Keep out of reach of pets.

For applications in waters destined for use as drinking water, those waters must receive additional and separate potable water treatment. Do not apply more than 1.0 ppm as metallic copper in these waters.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Mixers, loaders, applicators, and other handlers must wear long-sleeve shirt and long pants, shoes plus socks, chemical-resistant gloves made of any waterproof material, and protective eyewear (goggles, face shield or safety glasses).

Some materials that are chemical-resistant to this product are: polyethylene, polyvinyl chloride, barrier-laminate, and butyl, nitrile, neoprene, and natural rubber. If you want more options, follow the instructions for category A on an EPA chemical-resistance category selection chart.

USER SAFETY RECOMMENDATIONS

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

Users must wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Users must remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Users must remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish and aquatic invertebrates. Waters treated with this product may be hazardous to aquatic organisms. Treatment of aquatic weeds and algae can result in oxygen loss from decomposition of dead algae and weeds. This oxygen loss can cause fish and invertebrate suffocation. To minimize this hazard, do not treat more than ½ of the water body to avoid depletion of oxygen due to decaying vegetation. Wait at least 10 to 14 days between treatments. Begin treatment along the shore and proceed outwards in bands to allow fish to move into untreated areas. Consult with the State or local agency with primary responsibility for regulating pesticides before applying to public waters, to determine if a permit is required.

Certain water conditions including low pH ($\leq$6.5), low dissolved organic carbon (DOC) levels (3.0 mg/L or lower), and "soft" waters (i.e., alkalinity less than 50 mg/L), increases the potential acute toxicity to non-target aquatic organisms.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Do not apply this product through any type of irrigation system. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

Do not apply this product in a way that will contact adults, children, or pets, either directly or through drift.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forest, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 48 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is coveralls, shoes plus socks, chemical-resistant gloves made of any waterproof material, and protective eyewear.

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Applicators and other handlers who made this pesticide for any use not covered by the Worker Protection Standard (40 CFR Part 170) must wear long-sleeved shirt, chemical-resistant gloves made of any waterproof material, shoe plus socks, and protective eyewear.

SPRAY DRIFT MANAGEMENT

A variety of factors including weather conditions (e.g., wind direction, wind speed, temperature, relative humidity) and method of application (e.g., ground, aerial, airblast, chemigation) can influence pesticide drift. The applicator must evaluate all factors and make appropriate adjustments when applying this product.

Droplet Size

Apply only as a medium or coarser spray (ASAE standard 572) or a volume mean diameter of 300 microns or greater for spinning atomizer nozzles.

Wind Speed

Do not apply at wind speeds greater than 15 mph. Only apply this product if the wind direction favors on-target deposition (approximately 3 to 10 mph), and there are no sensitive areas within 250 feet downwind.

Temperature Inversions

If applying at wind speeds less than 3 mph, the applicator must determine if
a) conditions of temperature inversion exist, or
b) stable atmospheric conditions existat or below nozzle height.
Do not make applications into areas of temperatureinversions or stable atmospheric conditions.

Other State and Local Requirements

Applicators must follow all state and local pesticide drift requirements regarding application of copper compounds. Where states have more stringent regulations, they must be observed.

Equipment

All aerial and ground application equipment must be properly maintained and calibrated using appropriate carriers or surrogates.

Additional requirements for aerial applications:

- The boom length must not exceed 75% of the wingspan or 90% of the rotor blade diameter.
- Release spray at the lowest height consistent with efficacy and flight safety. Do not release spray at a height greater than 10 feet above the crop canopy unless a greater height is required for aircraft safety.
- When applications are made with a crosswind, the swath must be displaced downwind. The applicator must compensate for this displacement at the up and downwind edge of the application area by adjusting the path of the aircraft upwind.

Additional requirements for ground boom application:

Do not apply with a nozzle height greater than 4 feet above the crop canopy.

CONTROL OF ALGAE AND TADPOLE SHRIMP (TRIOPS LONGICAUDATUS) IN RICE FIELDS (DOMESTIC AND WILD)

Tadpole shrimp in rice fields may be effectively controlled by the prompt and proper use of Copper Sulfate Crystal. After the rice has been flooded to a depth of 3 inches, the Copper Sulfate Crystal should be uniformly applied at a rate of 2.5 to 3.75 pounds per acre at the first sign of infestation. Following these directions carefully one must keep the concentration of copper sulfate less than 10 ppm (2.5 ppm metallic copper). The "Diamond" size crystals are especially graded for maximum solubility.

Algae in rice fields may be effectively controlled by the prompt and proper use of Copper Sulfate Crystal. After the rice has been flooded to a depth of 3 inches, the Copper Sulfate Crystal should be uniformly applied at a rate of 2.7 pounds per acre at the first sign of algae. Following these directions carefully one must keep the concentration of copper sulfate less than 4 ppm (1 ppm metallic copper). The "Diamond" size crystals are especially graded for maximum solubility.

SEWER TREATMENT FOR ROOT AND FUNGUS CONTROL

Roots of shrubbery and trees growing near sewer lines frequently penetrate sewer lines in search of moisture and nutrients. If not controlled, root hairs will grow in diameter and number causing tile breakage, gradual reduced flow, and sometimes complete stoppage. Copper Sulfate Crystal is effective in keeping sewer lines free of roots. It is safe for drain systems and does not harm outdoor shrubbery or trees. Do not apply into sink or tub drains as it will corrode these metal drains.

FOR PARTIAL STOPPAGE: Add 1/2 pound of Copper Sulfate Crystal to sewer or drain and flush toward blockage with 5 gallons of water. Repeat at 6 month intervals to prevent growth of new roots.

FOR COMPLETE STOPPAGE: Physically remove the root blockage and repeat as above.

FOR HOUSEHOLD SEWERS: Use 2 lbs. Copper Sulfate Crystal up to two times/year (6 month intervals) in spring and early fall. Apply in toilet bowl near sewer line. Flush 1/2 lb portions at a time. Or, remove the cleanout plug and pour entire quantity directly into sewer line and flush with water.

If system is equipped with a septic tank, copper sulfate will be precipitated in the septic tank and little will pass into the absorption drain field. To treat drain field pipes, add 2 lbs. of Copper Sulfate Crystal to distribution box located between the septic tank and the drain field. If distribution box does not have an opening, it would be advisable to install a cleanout plug opening into the outlet pipe from the septic tank leading to the drain field for effective root control in the drain field pipes.

NOTE: Laboratory studies have shown that copper sulfate added to an active 300 gal. septic tank at 2 lbs. per treatment temporarily reduced bacterial action, but it returned to normal 15 days after treatment. Trees and shrubbery growing near a treated line normally will have only a small portion of their roots in contact with the copper sulfate that primarily kills only those roots inside the pipe, thus not affecting the growing plants.

FOR COMMERCIAL, INSTITUTIONAL AND MUNICIPAL USE:
SEWERS: Use 2 lbs. of Copper Sulfate Crystal up to two times/year (6 month intervals) at 2 lbs. to each junction or terminal manhole.
STORM DRAINS: Use 2 lbs. of Copper Sulfate Crystal per drain per year. Apply during period of light flow. In dry weather, induce a flow with hose. If storm drains become almost plugged, repeat treatment up to two times/year (6 month intervals) at 2 lbs. each.
SEWER PUMPS AND FORCE MAINS: Place 2 lbs. of Copper Sulfate Crystal in a cloth bag at the storage wall inlet. Repeat as needed at 6 month intervals.
*State laws prohibit the use of this product in sewage systems in Connecticut and in the following nine counties in California: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma.

CONTROL OF WEEDS, ALGAE, AND MICROSCOPIC ORGANISMS IN IMPOUNDED WATER SOURCES (e.g., TANKS, RACEWAYS, PONDS, LAKES, AND RESERVOIRS)

It is a violation of New York State Law for anyone to apply this product to surface waters unless he is either privately or commercially certified in category 5 (aquatic), or possesses a purchase permit for the specific application proposed.

To control weeds, algae, and microscopic organisms do not exceed 4 ppm Copper Sulfate Crystal (1 ppm metallic copper). Copper Sulfate Crystal may be reapplied every 14 days. No more than ½ of the water body may be treated at one time.

If treated water is to be used as an eventual source of potable water (after further treatment), the metallic residual must not exceed 1 ppm copper. This equals 10.64 pounds per acre foot of water or 4 ppm of this product.

PRECAUTION CONCERNING FISH: The treatment of algae with Copper Sulfate Crystal can result in oxygen loss in the water from decomposition of dead algae. This can cause the fish to suffocate. Care should be taken when water temperature exceeds 85°F. At this water temperature, aquatic plants treated with copper sulfate decompose rapidly causing an increase in oxygen depletion. Therefore, to minimize this hazard, treat 1/3 to 1/2 of the water area in a single operation. Wait 7 to 14 days between treatments. Begin treatments along the shore and proceed outwards in bands to allow fish to move into untreated water. When fish are present levels must not exceed 1.6 ppm Copper Sulfate Crystal (0.4 ppm metallic copper).

APPLICATION BY DRAGGING COPPER SULFATE CRYSTAL UNDER WATER-Copper Sulfate Crystal is placed in burlap bags or baskets and dragged through the water by means of a boat. Begin treatment along the shoreline and proceed outward until 1/3 and 1/2 of the total area has been treated. The path of the boat should insure a distribution that is even. In large lakes, the boat should move in parallel lines about 60 feet apart. Continue dragging until all of the weighed Copper Sulfate Crystal is dissolved.

APPLICATION BY SPRAYING COPPER SULFATE CRYSTAL SOLUTION ON WATER SURFACE: A solution can be made with Copper Sulfate Crystal which dissolve easily in water. This solution can be sprayed on the pond or lake surface from a boat. When using this method, the wind direction is important as well as the operation of the boat. Do not endanger people or animals in the boat with the copper sulfate spray.

APPLICATION BY INJECTING COPPER SULFATE SOLUTION IN WATER: A solution can be made with Copper Sulfate Crystal. This solution can then be injected into the water via a piping system.

APPLICATION BY BROADCASTING DRY COPPER SULFATE CRYSTAL: Crystals may be broadcast directly on the water surface from the shore or from a properly equipped boat. Triangle Brand Crystals ranging from ±10 mesh to ±1/2 inch are preferred for this method of application. A specifically equipped air blower can be used to discharge these size crystals at a specific rate over the surface of the water. When using this method, the wind direction is an important factor. Do not use this method unless completely familiar with this type of application.

APPLICATION BY SPRAYING DRY COPPER SULFATE CRYSTAL FROM AIRPLANES AND HELICOPTERS: Professional personnel licensed by the State Agricultural Extension Service are allowed to apply Copper Sulfate Crystal in some states.

HOW TO FIND THE POUNDS OF COPPER SULFATE TO ADD TO WATER

To find acre-feet of water in a body of water, measure the body of water in feet. Calculate the surface area in square feet, divided by 43,560 (sq. ft./acre) times the average depth in feet

1 acre-foot of water = Water measuring 208.7 ft. long by 208.7 ft. wide by 1 ft. deep.
1 acre-foot of water = 43,560 cubic feet of water
1 cubic foot of water = 62.4 pounds.
1 acre-foot of water = (43,560)(62.4) – 2,720,000 pounds.

COPPER SULFATE PENTAHYDRATE IN WATER

POUNDS OF COPPER SULFATE CRYSTAL PER ACRE-FOOT OF WATER	=	PARTS (BY WT.) COPPER SULFATE CRYSTAL PER MILLION PARTS (BY WT.) OF WATER	=	PARTS (BY WT.) COPPER PER MILLION PARTS (BY WT.) OF WATER
0.68#/acre-foot	=	1/4ppm	=	0.0625 ppm
1.36#/acre-foot	=	1/2ppm	=	0.125 ppm
2.72#/acre-foot	=	1ppm	=	0.25 ppm
5.44#/acre-foot	=	2ppm	=	0.50 ppm

TREATMENT OF SOME ALGAE WITH COPPER SULFATE CRYSTAL

Dosage is in ppm of Copper Sulfate Crystal. The higher concentration is required if the water is hard. Consult with the State Fish and Game Agency before applying product in municipal waters.

ORGANISMS	RATES			
	0.25 to 0.50 ppm	0.50 to 1.00 ppm	1.00 to 1.50 ppm	1.50 to 2 ppm
CYANOPHYCEAE (BLUE GREEN)	Anabaena Anacystis Aphanizomenon Gloeotrichia Gomphosphaeria Polycystis Rivularia	Cylindrospermum Oscillatoria Plectonema	Nostoc Phormidium	Calothrix Symploca
CHLOROPHYCEAE (GREEN)	Closterium Hydrodictyon Spirogyra Ulothrix	Botryococcus Cladophora Coelastrum Draparnaldia Enteromorpha Gloeocystis Microspora Tribonema Zygnema	Chlorella Crucigenia Desmidium Golenkinia Oocystis Palmella Pithophora Staurastrum Tetraedron	Ankistrodemus Chara Nitella Scenedesmus
DIATOMACEAE (DIATOMS)	Asterionella Fragilaria Melorias Navicula	Gomphonema Nitzschia Stephanodiscus Synedra Tabellaria	Achnanthes Cymbella Neidium	
PROTOZOA (FLAGELLATES)	Dinobryon Synura Uroglena	Ceratium Cryptomonas Euglena Glenodinium Mallomonas	Chlamydomonas Hawmatococcus Peridinium	Eudorina Pandorina

CONTROL OF WEEDS AND ALGAE IN FLOWING WATER

Potamogeton pondweeds, leafy and sago, in irrigation conveyance systems: Use the continuous application method, selecting proper equipment to supply Copper Sulfate Crystal at 0.25 to 0.5 pounds per hour for each cubic foot per second of flow for 12 hours of each 24 hours. For best control, begin copper sulfate additions when water is first turned into system to be treated and continue throughout the irrigation season. Copper Sulfate Crystal becomes less effective for mature plants. Copper Sulfate Crystal becomes less effective as the bicarbonate alkalinity increases and is substantially reduced above 150 ppm as $CaCO_3$. Mechanical or other means may then be required to remove excess growth.

Algae (such as filamentous green, pigmented flagellates, diatoms) in irrigation conveyance systems: Begin continuous addition when water is first turned on, using suitable equipment to uniformly deliver 0.1 to 0.2 pounds of Copper Sulfate Crystal per hour per cubic foot per second of flow for 12 of each 24 hours. (Note: Copper Sulfate Crystal comes in several "free flowing" crystal sizes but should be selected to match requirements of your feeder.)

Algae and weeds in irrigation systems by "slug" method of addition: Make a dump of Copper Sulfate Crystal into the irrigation ditch or lateral at 1/2 to 2 pounds per second of water per treatment. Repeat about every 2 weeks as needed. A dump is usually necessary every 5 to 30 miles depending on water hardness, alkalinity and algae concentration.

Do not exceed 4 ppm (1.0 ppm as metallic copper) for any application.

CONTROL OF SNAILS IN IMPOUNDED WATERS

Application to Recreational Lakes, Reservoirs, and Ponds (Golf, Farm, Fish and Fire): Apply 5.44 – 10.88 lbs/acre-ft. Copper Sulfate Crystal (i.e. 2-4 ppm copper sulfate crystal), is usually sufficient for treatment of fresh water snails. Use surface area in acres multiplied by average depth in feet to determine water volume and application rate. Apply only along shoreline swimming areas and/or to infected snail beds on a calm sunny day when water temperature is at least 60° F. Do not allow swimming for at least 12 hours following treatment. If this lower dosage is not sufficient, up to 6 ppm copper sulfate, i.e. 16.32 lbs/acre-ft. bottom surface area can be applied. Do not allow swimming for 48 hours. Using either dosage, a second application may be necessary, 10 to 14 days later. DO NOT make more than two applications per calendar year. Apply by broadcast using boat, aircraft, or hand equipped with power or hand seeder or underwater dispenser. Do not exceed 1.0 ppm copper (4 ppm copper sulfate) in potable water systems. This labeling must be in the possession of the user at the time of pesticide application.

NOTE: In the state of New York – For use in Recreational Lakes, Reservoirs, and Ponds (Golf, Farm, Fish and Fire) ONLY in areas where infected snails have been identified. Apply medium grade crystals by hand broadcast method of application only. This product is a restricted use pesticide in New York State. Pesticide applicator certification or a special use permit is required for sale, possession, or use. Each individual treatment must be approved by the Department of Environmental Conservation. Therefore, you must contact the Pesticide Control Specialist at the appropriate regional office of the Department 30 days in advance of the proposed treatment.

CONTROL OF ALGAE AND BACTERIAL ODOR IN SWIMMING POOLS

Apply 1 to 2 lbs. of Copper Sulfate Crystal per 60,000 gals. (8,000 cu.ft.) of water. This will result in a concentration of 0.5 to 1.0 ppm of dissolved copper. Dissolve the required amount of copper sulfate in a plastic container and pour the solution into the pool. Use the higher rate where visible algae present. For maintenance dosages, use the lower rate. Repeat the lower rate to control the recurrence of algae and avoid the buildup of copper. Copper Sulfate Crystal may be used to help control pool odors and algae during the winter months. Apply the higher rate while the pool is not being used during the winter. Treated pool effluent should not be discharged where it will drain into lakes, streams, ponds, or public water.

CONTROL OF ALGAE AND BACTERIAL ODOR IN SEWAGE LAGOONS AND PITS (Except California)

Application rates may vary depending on amounts of organic matter in effluent stream or retention ponds. Use 2 lbs. of Copper Sulfate Crystal in 60,000 gals. (8,000 cu. ft.) of effluent to yield 1 ppm of dissolved copper. Dosage levels may vary depending upon organic load.

Other Organic Sludges: Copper Sulfate Crystal solution must be thoroughly mixed with sludge. Dissolve 2 lbs. in 1-2 gals. of water and apply to each 30,000 gals. of sludge.

Useful formulas for calculating water volume and flow rates. Multiply the water volume in cu. ft. times 7.5 to obtain gallons.

Note: 1 C.F.S./Hr. = 27,000 Gals.
1 Acre Foot = 326,000 Gals.

CONTROL OF ALGAE AND BACTERIAL ODOR IN WATERSCAPES, DECORATIVE POOLS AND FOUNTAINS

Apply in the spring or early summer when algae and bacteria first appear. The dosages are variable and depend upon algae/bacteria species, water hardness, water temperature, amount of algae and bacteria present as well as whether water is clear, turbid, flowing or static. Preferably, the water should be clear with temperatures above 60°F. Higher dosages are required at lower water temperatures, higher algae and bacteria concentrations and for hard waters. For each 7, 500 gals. of water, dissolve 1/4 lb. Copper Sulfate Crystal in one gallon of water. Pour the solution into the water to be treated. Several application points speed up dispersal. Static water requires less chemical than does flowing water. If uncertain about the dosage, begin with a lower dose and increase until control is achieved or until the maximum allowable level of metallic copper (1 ppm) has been reached.

STORAGE AND DISPOSAL

PESTICIDE STORAGE: Do not contaminate water, food, or feed by storage or disposal. Store unused product in original container only in a cool, dry area out of reach of children and animals. If container or bag is damaged, place the container or bag in a plastic bag. Shovel any spills into plastic bags and seal with tape. Keep away from galvanized pipe and nylon equipment. In the event copper sulfate solution is spilled, neutralize with limestone or baking soda before disposal. Copper sulfate solution may deteriorate concrete.

PESTICIDE DISPOSAL: Pesticide wastes are acutely hazardous. Improper disposal of pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

CONTAINER HANDLING: Nonrefillable container. Do not reuse or refill this container.
If in bag: Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke. Offer for recycling, if available.
If in fiber drum with liner: Completely empty container by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application equipment. Then dispose of liner in a sanitary landfill or by incineration if allowed by state and local authorities. If burned, stay out of smoke. If drum is contaminated and cannot be reused, dispose of it in the manner required for its liner. Offer for recycling, if available.

(If product is intended for household sewer treatment, use the following Handling statements):

CONTAINER HANDLING: If empty, do not reuse container. Place in trash or offer for recycling if available. If partly filled, call your local solid waste agency or 1-800-CLEANUP for disposal instructions. Never place unused product down any indoor or outdoor drain.

NOTICE TO BUYER

Seller makes no warranty, expressed or implied, concerning the use of this product other than indicated on the label. To the extent consistent with applicable law, buyer assumes all risk of use and/or handling of this material when such use and/or handling is contrary to label instructions.

WARRANTY STATEMENT

FREEPORT-MCMORAN SIERRITA INC. warrants that this product conforms to the chemical description on the label thereof and is reasonably fit for purposes stated on such label only when used in accordance with directions under normal use conditions. It is impossible to eliminate all risks inherently associated with use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application, all of which are beyond the control of FREEPORT-MCMORAN SIERRITA INC. To the extent consistent with applicable law, FREEPORT-MCMORAN SIERRITA INC. shall not be liable for consequential, special or indirect damages resulting from the use or handling of this product. To the extent consistent with applicable law, all such risks shall be assumed by the Buyer. To the extent consistent with applicable law, exclusive remedy of any buyer or user of this product for any and all losses, injuries, or damages resulting from or in any way arising from the use, handling or application of this product, whether in contract, warranty, tort, negligence, strict liability or otherwise, shall not exceed the purchase price paid for this product or at FREEPORT-MCMORAN SIERRITA INC.'s election, the replacement of this product. FREEPORT-MCMORAN SIERRITA INC. MAKES NO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

06-08-10 revision of Container Disposal

50 LBS. NET WEIGHT (22.68 KILOS)

COPPER SULFATE CRYSTALS

ACTIVE INGREDIENT	BY WEIGHT
COPPER SULFATE PENTAHYDRATE	99.0%
OTHER INGREDIENTS	1.0%
TOTAL	100.0%

CAS #7758-99-8
COPPER AS METALLIC NOT LESS THAN 25%

See back panel for specific pesticidal use directions.

Also for non-pesticidal uses of copper sulfate including but not limited to:

- For Non-Pesticidal Manufacturing and Industrial Uses.
- For manufacturing, repackaging, formulation of algaecides and fungicides.
- For use as foot baths to control hoof rot in cattle.
- For use in preparing Bordeaux mixture.
- For use as a trace mineral for mixing in animal feeds at levels in accord with good feeding and feed manufacturing practices.
- For use as a fertilizer trace mineral for plant growth and used in accord with recommended agronomic practices.

(NOTE: For the states of Wisconsin, California, Oregon and Washington fertilizer recommendations and information, refer to back panel.)

When this product is used as a feed or fertilizer ingredient:
Guaranteed Analysis: Copper (Cu) = 25.0% Derived from Copper Sulfate

KEEP OUT OF REACH OF CHILDREN

DANGER - PELIGRO

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.
(If you do not understand the label, find someone to explain it to you in detail.)

FIRST AID	
If on skin or clothing:	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
If inhaled:	Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth to mouth, if possible. Call a poison control center or doctor for further treatment advice.
If in eyes:	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue to rinse eye. Call a poison control center or doctor for treatment advice.
If swallowed:	Call poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.
Notes:	Have the product container or label with you when calling a poison control center or doctor, or going for treatment. In the event of a medical emergency, you may also contact the National Pesticide Information Center at 1-800-858-7378.

CHEM ONE LTD.

This product manufactured for
CHEM ONE LTD.
HOUSTON, TEXAS - **77041**

EPA REG. NO. 56576-1
EPA EST. NO. 52117-MX-001

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS
DANGER - PELIGRO

CORROSIVE: Causes eye damage and irritation to the skin and mucous membranes. Harmful or fatal if swallowed. Do not get in eyes, on skin or on clothing. Do not breathe dust or spray mist. May cause skin sensitization reactions to certain individuals.

PERSONAL PROTECTIVE EQUIPMENT

Applicators and other handlers must wear: Long-sleeved shirt and long pants, chemical-resistant gloves made of any waterproof material, shoes plus socks, and protective eyewear. Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category A on an EPA chemical resistance category selection chart. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

USER SAFETY RECOMMENDATIONS:

Users should: Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

This product is toxic to fish. Direct application of Copper Sulfate to water may cause a significant reduction in populations of aquatic invertebrates, plants and fish. Do not treat more than one-half of lake or pond at one time in order to avoid depletion of oxygen from decaying vegetation. Allow 1 to 2 weeks between treatments for oxygen levels to recover. Trout and other species of fish may be killed at application rates recommended on this label, especially in soft or acid waters. However, fish toxicity generally decreases when the hardness of water increases. Do not contaminate water by cleaning of equipment or disposal of wastes. Consult your local State Fish and Game Agency before applying this product to public waters. Permits may be required before treating such waters.

STORAGE AND DISPOSAL

PROHIBITIONS: Do not contaminate water, food or feed by storage or disposal. Open burning and dumping is prohibited.
STORAGE: Keep pesticide in original container. Do not put concentrate or dilutions of concentrate in food or drink containers.
PESTICIDE DISPOSAL: Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.
CONTAINER DISPOSAL: Nonrefillable container. Do not reuse or refill this container. Offer for recycling, if available. Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

(FOR RIGID, NONREFILLABLE CONTAINERS)
CONTAINER DISPOSAL: Nonrefillable container. Do not reuse or refill this container. Offer for recycling, if available. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

STORAGE AND DISPOSAL
("residential use")

Do not contaminate water, food or feed by storage or disposal.
STORAGE: Store in original container and place in a locked storage area.
CONTAIINER DISPOSAL: Nonrefillable container. Do not reuse or refill this container. **If empty:** Place in trash or offer for recycling, if available. **If partly filled:** Call your local solid waste agency for disposal instructions. Never place unused product down any indoor or outdoor drain..

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.
Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For requirements specific to your State or Tribe, consult the agency responsible for pesticide regulations.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is: Coveralls, chemical-resistant gloves made of any waterproof material (such as polyvinyl chloride, nitrile rubber, or butyl rubber), shoes plus socks, and protective eyewear.

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.
Applicators and other handlers who handle this pesticide for any use NOT covered by the Worker Protection Standard (40 CFR Part 170) must wear: long-sleeved shirt, chemical-resistant gloves made of any waterproof material (such as polyvinyl chloride, nitrile rubber, or butyl rubber), shoes plus socks, and protective eyewear.

GENERAL INSTRUCTIONS FOR USE

Water hardness, temperature of the water, the type and amount of vegetation to be controlled, and the amount of water flow are to be considered in using Copper Sulfate to control algae. Begin treatment soon after plant growth has started. If treatment is delayed until a large amount of algae is present, larger quantities of Copper Sulfate will be required. Algal growth is difficult to control with Copper Sulfate when water temperatures are low or when the water conditions are hard water. Larger quantities of Copper Sulfate will be required to kill and control algae in water which is flowing than in a body of stagnant water. If possible, curtail the flow of water before treatment and hold dormant for approximately three days after treatment or until the algae have begun to die. When preparing a Copper Sulfate solution in water, the mixing container should be made of plastic or glass: or, a painted, enameled, or copper lined metal container. It is usually best to treat algae on a sunny day when the heavy mats of filamentous algae are most likely to be floating on the surface where it can be sprayed directly. If there is some doubt about the concentration to apply, it is generally best to start with a lower concentration and to increase this concentration until the algae are killed.

Treatment of algae can result in oxygen loss from decomposition of dead algae. This loss can cause fish suffocation. Therefore, to minimize this hazard, treat one-third to one-half of the water area in a single operation and wait 10 to 14 days in between treatments. Begin treatments along the shore and proceed outward in bands to allow fish to move into untreated water. NOTE: If treated water is to be used as a source of potable water, the metallic copper residual must not exceed 1 ppm (4 ppm copper sulfate pentahydrate).

CALCULATIONS FOR THE AMOUNT OF WATER IMPOUNDED AND FOR THE AMOUNT OF COPPER SULFATE TO BE USED: Calculate water volume as follows: (1) Obtain surface area by measuring of regular shaped ponds or mapping of irregular ponds or by reference to previously recorded engineering data or maps. (2) Calculate average depth by sounding in a regular pattern and taking the mean of these readings or by reference to previously obtained data. (3) Multiply surface area in feet by average depth in feet to obtain cubic feet of water volume. (4) Multiply surface area in acres by average depth in feet to obtain total acre-feet of water volume.

CALCULATE WEIGHT OF WATER TO BE TREATED AS FOLLOWS: (1) Multiply volume in cubic feet by 62.44 to obtain total pounds of water, or (2) Multiply volume in acre feet by 2,720,000 to obtain pounds of water.

CALCULATIONS OF ACTIVE INGREDIENT TO BE ADDED: To calculate the amount of Copper Sulfate Pentahydrate needed to achieve the recommended concentration, multiply the weight of water by the recommended concentration of Copper Sulfate. Since recommended concentrations are normally given in parts per million (ppm), it will first be necessary to convert the value in parts per million to a decimal equivalent. For example, 2 ppm is the same as 0.000002 when used in this calculation. Therefore, to calculate the amount of Copper Sulfate Pentahydrate to treat 1 acre-foot of water with 2 ppm Copper Sulfate, the calculation would be as follows:

0.000002 X 2,720,000 = 5.44 lbs. Copper Sulfate Pentahydrate

CALCULATION OF WATER FLOW IN DITCHES, STREAMS, AND IRRIGATION SYSTEMS: The amount of water flow in cubic feet per second is found by means of a weir or other measuring device.

SPECIFIC INSTRUCTIONS

SEWER TREATMENT – ROOT DESTROYER*

ROOT CONTROL GENERAL INFORMATION: Plant roots can penetrate through small cracks and poorly sealed joints of sewer lines. If not controlled, these small roots will continue to grow larger in number causing breakage, reduced flow, and eventually, flow stoppage. Copper sulfate has been known to be an effective means to control roots in residential and commercial sewers.

COMMERCIAL, INSTITUTIONAL, AND MUNICIPAL SEWERS:

ROOT CONTROL IN SEWERS: As a preventive measure, apply into each junction or terminal manhole 2 pounds of Copper Sulfate Crystals every 6 to 12 months. At time of reduced flow (some water flow is essential), add copper sulfate. If flow has not completely stopped, but has a reduced flow due to root masses, add Copper Sulfate Crystals in the next manhole above the reduced flow area. For complete stoppage, penetrate the mass with a rod to enable some flow before treatment.

ROOT CONTROL IN STORM DRAINS: Apply when water flow is light. If no water flow, as in dry weather, use a hose to produce a flow. Apply 2 pounds Copper Sulfate Crystals per drain per year. It may be necessary to repeat treatments 3 to 4 times, at 2 week intervals, if drains become nearly plugged.

SEWER PUMPS AND FORCE MAINS: At the storage well inlet, place a cloth bag containing 2 pounds of Copper Sulfate Crystals. Repeat as necessary.

RESIDENTIAL OR HOUSEHOLD SEWER SYSTEMS:

When a reduced water flow is first noticed, and root growth is thought to be the cause, treat with Copper Sulfate Crystals. It is important not to wait until a stoppage occurs because some water flow is necessary to move the Copper Sulfate Crystals to the area of root growth. Usually, within 3 to 4 weeks, after roots have accumulated sufficient copper sulfate, the roots will die and begin to decay and water flow should increase. As the roots regrow, follow-up treatments with copper sulfate will be required. Applications may be made each year in the spring after plant growth begins, during late summer or early fall, or any time a reduced water flow, thought to be caused by root growth, occurs.

Apply 2-6 pounds Copper Sulfate Crystals two times a year to household sewers. Add Copper Sulfate Crystals to sewer line by pouring about ½ pound increments into the toilet bowl nearest the sewer line and flush, repeat this process until recommended dose has been added, or remove cleanout plug and pour entire recommended quantity directly into the sewer line. Replace the plug and flush the toilet several times.

ROOT CONTROL IN SEPTIC TANK AND LEACH LINES AND LEACH LINE PIPES:

SEPTIC TANKS – The majority of the copper sulfate will settle in the septic tank itself and little will pass into the leach lines. To treat leach line pipes, add 2 to 6 pounds of Copper Sulfate Crystals to the distribution box located between the septic tank and the leach lines. To achieve effective root control in the leach lines it is necessary to transfer Copper Sulfate Crystals from the septic tank to the leach lines. A cleanout plug opening may need to be installed if the distribution box does not have an opening leading to the leach lines.

***NOTE:** Do not apply Copper Sulfate Crystals through sink or tub drains as it will corrode the metal drains.

***NOTE:** Copper sulfate added to an active 300 gallon septic tank at 2, 4 and 6 pounds per treatment will temporarily reduce bacterial action, but it will return to normal approximately 15 days after treatment. Trees and shrubbery growing near a treated line normally are not affected due to only a small portion of their roots being in contact with the copper sulfate. The copper sulfate kills only those roots inside the leach line.

***NOTE:** Do not use as a sewer additive where prohibited by State law. State law prohibits the use of this product in sewage systems in the State of Connecticut. Not for sale or use in the California counties of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma for root control in sewers. Not for sale or use in septic systems in the State of Florida.

TO CONTROL ALGAE AND THE POTOMOGETON POND WEEDS, LEAFY AND SAGO, IN IRRIGATION SYSTEMS:

Once the amount of Copper Sulfate required for treating ditches or streams has been calculated, use a continuous application method, selecting proper equipment to supply Copper Sulfate granular crystals as follows:

FOR ALGAE CONTROL – Begin continuous addition application of granular Copper Sulfate when water is first turned into the system and continue throughout the irrigation system, applying 0.1 to 0.2 lbs per cubic ft per second per day.

FOR LEAFY AND SAGO POND WEED CONTROL – Use the same continuous feeder, applying 1.6 to 2.4 pounds Copper Sulfate Pentahydrate per cubic foot per second per day. NOTE: For best control of leafy and sago pond weed, it is essential to begin Copper Sulfate additions when water is first turned into the system or ditch to be treated and to continue throughout the irrigation system. Copper Sulfate becomes less effective as the alkalinity increases. Its effectiveness is significantly reduced when the bicarbonate alkalinity exceeds 150 ppm. Should Copper Sulfate fail to control pond weeds satisfactorily, it may be necessary to treat the ditch with either a suitable approved herbicide or use a mechanical means to remove excess growth. In either case, resume Copper Sulfate addition as soon as possible.

TO CONTROL ALGAE IN IMPOUNDED WATERS, LAKES, PONDS AND RESERVOIRS: There are several methods by which to apply Copper Sulfate to impounded water. Probably the most satisfactory and simplest method is to dissolve the Copper Sulfate crystals in water and to spray this water over the body of water from a boat. A small pump mounted in the boat can easily be used for this purpose. Fine crystals may be broadcast directly on the water surface from a properly equipped boat. A specially equipped air blower can be used to discharge fine crystals at a specific rate over the surface of the water. When using this method, the direction of the wind is an important factor. Do not use this method unless completely familiar with this type of application. Where the situation permits, Copper Sulfate may be applied under the water by dragging burlap bags containing Copper Sulfate. The crystals are placed in burlap bags and dragged through the water by means of a boat. Begin treatment along the shoreline and proceed outward until one-third to one-half of the total area has been treated. Care should be taken that the course of the boat is such as to cause even distribution of the chemical. In large lakes, it is customary for the boat to travel in parallel lines about 20 to 100 feet apart. Continue dragging the burlap bags over the treated area until the minimum dosage is achieved and all crystals have been dissolved. Large or medium size crystals that dissolve slowly should be used with this method.

Copper Sulfate can be applied to impounded waters by injecting a copper sulfate solution in water via a piping system.

CONTROL OF ALGAE AND BACTERIAL ODOR IN SEWAGE LAGOONS AND PITS (Except California):

Application rates may vary depending on amounts of organic matter in effluent stream or retention ponds. Use 2 lbs. of Copper Sulfate Crystals in 60,000 gals. (8,000 cu. ft.) of effluent to yield 1 ppm of dissolved copper. Dosage levels may vary depending upon organic load. Other Organic Sludges: Copper Sulfate Crystal solution must be thoroughly mixed with sludge. Dissolve 2 lbs. in 1-2 gals. of water and apply to each 30,000 gals. of sludge.

Useful formulas for calculating water volume flow rates: Multiply the water volume in cu. ft. times 7.5 to obtain gallons.

Note: 1 C.F.S./Hr. = 27,000 Gals. 1 Acre Foot = 326,000 Gals.

TO CONTROL ALGAE IN IRRIGATION CONVEYANCE SYSTEMS USING THE SLUG APPLICATION METHOD: Make an addition (dump) of Copper Sulfate into the irrigation ditch or lateral at 0.25 to 2.0 lbs. per cubic foot per second of water per treatment. Repeat on approximate 2-week intervals as required. Depending on water hardness, alkalinity and algae concentration, a dump is usually required every 5 to 30 miles. Effectiveness of Copper Sulfate decreases as the bicarbonate alkalinity increases and is significantly reduced when the alkalinity exceeds approximately 150 ppm as $CaCO_3$.

TO CONTROL ALGAE IN RICE (Domestic and Wild) FIELDS: Application should be made when algae have formed on the soil surface in the flooded field. Applications are most effective when made prior to the algae's leaving the soil surface and rising to the water surface. Apply 10-15 pounds Copper Sulfate Crystals per acre to the water surface as either crystals or dissolve in water and make a surface spray. Apply higher rate in deeper water (6 inches or greater).

TO CONTROL TADPOLE SHRIMP IN RICE FIELDS: Application should be made to the flooded fields any time the pest appears from planting time until the seedlings are well rooted and have emerged through the water. Apply 5-10 pounds

Copper Sulfate Crystals per acre. The use rate per acre should be determined by the water depth and flow. Use the lower rate at minimum flow and water depth and the higher rate when water depth and flow are maximum.

STATE	SPECIES	BULLETIN NO.	COUNTY
CALIFORNIA	Solano grass	EPA/ES-85-13	Solano
TENNESSEE	Slackwater Darter	EPA/ES-85-04	Lawrence Wayne Hancock
	Freshwater Mussels	EPA/ES-85-07	Claiborne Hawkins Sullivan
ALABAMA	Slackwater Darter	EPA/ES-85-05	Lauderdale Limestone Madison
VIRGINIA	Freshwater Mussels	EPA/ES-85-06	Grayson Smyth Scott Washington Lee

ENDANGERED SPECIES RESTRICTIONS: It is a violation of Federal Law to use any pesticide in a manner that results in the death of an endangered species or adverse modification of their habitat. The use of this product may pose a hazard to certain Federally designated endangered species known to occur in specific areas within the above counties. ***PLEASE NOTE*** Before using this product in the above counties you must obtain the EPA Bulletin specific to your area. This Bulletin identifies areas within these counties where the use of this pesticide is prohibited, unless specified otherwise. The EPA Bulletin is available from either your County Agricultural Extension Agent, the Endangered Species Specialist in your State Wildlife Agency Headquarters, or the appropriate Regional Office of the U.S. Fish and Wildlife Service. THIS BULLETIN MUST BE REVIEWED PRIOR TO PESTICIDE USE.

COPPER SULFATE REQUIRED FOR TREATMENT OF DIFFERENT GENERA OF ALGAE

The genera of algae listed below are commonly found in waters of the United States. Use the lower recommended rate in soft waters (less than 50 ppm methyl orange alkalinity) and the higher concentration in hard waters (above 50 ppm alkalinity). Always consult State Fish and Game Agency before applying this product to municipal waters.

ORGANISM	¼ to ½ ppm*	½ to 1 ppm*	1 to 1½ ppm*	1½ to 2 ppm*
Cyanophyceae (Blue-green)	Anabaena Anacystis Aphanizomenon Gloeotrichia Gomphosphaeria Polycystis Rivularia	Cylindrospermum Oscillatoria Plectonema	Nostoc Phormidium	Calothrix Symploca
Chlorophyceae (Green)	Closterium Hydrodictyon Spirogyra Ulothrix	Botryococcus Cladophora Coelastrum Draparnaldia Enteromorpha Gloeocystis Microspora Tribonema Zygnema	Chlorella Crucigenia Desmidium Golenkinia Oocystis Palmella Pithophora Staurastrum Tetraedron	Ankistrodesmus Chara Nitella Scenedesmus
Diatomaceae (Diatoms)	Asterionella Fragilaria Melosira Navicula	Gomphonema Nitzschia Stephanodiscus Synedra Tabellaria	Achnanthes Cymbella Neidium	
Protozoa (Flagellates)	Dinobryon Synura Uroglena Volvox	Ceratium Cryptomonas Euglena Glenodinium Mallomonas	Chlamydomonas Hawmatococcus Peridinium	Eudorina Pandorina

* ¼ - ½ ppm = .67 – 1.3 lbs/acre ft. * 1 – 1½ ppm = 2.6-3.9 lbs/acre ft.
* ½ - 1 ppm = 1.3 – 2.6 lbs/acre ft. * 1½ - 2 ppm = 3.9 – 5.32 lbs/acre ft.

SCHISTOSOME-INFECTED FRESH WATER SNAILS

For recreational lakes, reservoirs, and ponds, 5.32 -13.3 lbs/acre-ft Copper Sulfate Crystals (i.e., 2-5 ppm copper sulfate), is usually sufficient for treatment of Schistosome-infected fresh water snails. Use surface area in acres multiplied by average depth in feet to determine water volume and application rate. Apply only along shoreline swimming areas and/or

to infected snail beds on a calm sunny day when water temp is at least 60°F. Not allowing swimming for at least 12 hrs following treatment is recommended. If this lower dosage is not sufficient, up to 32 ppm copper sulfate, i.e., 87 lbs/acre (= 2 lbs/1000 sq ft) bottom surface area can be applied. Not allowing swimming for 48 hrs is recommended. Using either dosage, a second application may be made if necessary, 10 to 14 days later. DO NOT make more than two applications a season. Broadcast application using boat, aircraft, or hand equipped with power or hand seeder or underwater dispenser. Do not exceed 1 ppm copper (4 ppm Copper Sulfate) in potable water systems. This labeling must be in the possession of the user at the time of pesticide application. **NOTE : In the State of New York** –For use in recreational lakes, reservoirs and ponds ONLY in areas where infected snail beds have been identified. Apply medium grade crystals by hand broadcast method of application only. This product is a restricted use pesticide in New York State. Pesticide applicator certification or a special use permit is required for sale, possession, or use. Each individual treatment must be approved by the Department of Environmental Conservation. Therefore, you must contact the Pesticide Control Specialist at the appropriate regional office of the Department 30 days in advance of the proposed treatment.

FOOT BATHS FOR CATTLE

Foot baths of Copper Sulfate Crystals can be used as an aid in the treatment of hoof rot in cattle. Prior to treatment, a veterinarian should be consulted to confirm presence of hoof rot. Animals may be walked through a foot bath of 2% (add 2 lbs copper sulfate to 11.8 gals water) to 5% (add 5 lbs copper sulfate to 11.4 gals water) aqueous solution with an immersion time of 5 to 20 min twice daily for a period of time as prescribed by a veterinarian. Keep foot baths clean during treatment period. Do not allow cattle to drink from foot baths as copper sulfate is highly toxic. Follow instructions under Storage and Disposal when solutions are discarded at end of treatment period.

Wisconsin State Copper fertilizer recommendations[a]

Crop	Pounds per Acre					
	Sands		Loams,silts,clays		Organic	
	Bdct[b]	Band	Bdct[b]	Band	Bdct[b]	Band
Lettuce, onion, Spinach	10	2	12	3	13	4
Carrot, cauliflower, celery, alfalfa, clover, corn, oat, radish, sudan grass, wheat	4	1	8	2	12	3
Asparagus, barley, beans, beet, broccoli, mint, pea, potato, rye, soybean	0	0	0	0	0	2

[a]Recommendations are for inorganic sources of copper. Copper chelates can also be used at 1/6 of the rates recommended above. Do not apply copper unless a deficiency has been verified by plant analysis. [b]Bdct = broadcast

Washington, Oregon, and California Fertilizer Use

Information received by the Washington State Dept. of Agriculture regarding the components in this product is available on the internet at http://agr.wa.gov Information regarding the contents and levels of metals in this product is available at the Oregon Dept of Agriculture internet site: http://oda.state.or.us/fertilizer

BORDEAUX SPRAY MIXTURE

Understanding Bordeaux Formulations: If the Bordeaux mixture instructions read 10-10-100, the first figure indicates the number of lbs of Copper Sulfate Crystals. The second figure is the lbs of hydrated spray lime and the third figure is the gallons of water to be used. Use as a full coverage spray to point of runoff.

Preparation of Bordeaux Spray Mixture: Fill a tank 1/4 full with water. Then, with agitator running, mix in Copper Sulfate Crystals through a copper, bronze, stainless steel or plastic screen. Add water so the tank is 3/4 full. Mix in the hydrated spray lime through the screen and finish filling the tank with water.

CROP USE RECOMMENDATIONS

Almond, Apricot, Peach, Nectarine: Shot Hole Fungus – Prepare a 10-10-100 Bordeaux and apply as a dormant spray in late fall or early spring.

Almond, Apricot, Cherry, Peach, Nectarine, Plum, Prune: Brown Rot Blossom Blight – Prepare a 10-10-100 Bordeaux and apply when buds begin to swell.

Apple: Fireblight – Mix 5 lbs of Copper Sulfate Crystals in 100 gals of water and spray uniformly to the point of runoff. Apply in dormant only at silver tip stage. After silver tip, severe burn will occur on any exposed green tissue. Do not mix lime to make a Bordeaux spray for this treatment.

Blueberries: Bacterial Canker – Prepare and apply an 8-8-100 Bordeaux mixture in the fall before heavy rains begin and again 4 weeks later.

Bulbs (Easter Lily, Tulip, Gladiolus): Botrytis Blight – Prepare a 10-10-100 Bordeaux mixture and apply as a foliar spray to 1 acre. Apply for thorough coverage beginning at the first sign of disease and repeat as needed to control disease at 3 to 10 day intervals. Use the shorter intervals during periods of frequent rains or when severe disease conditions persist. Avoid spray just before flower cutting season if residues are a problem.

Caneberries: For leaf and cane spot and Pseudomonas blight, prepare and apply an 8-8-100 Bordeaux mixture in the fall before heavy rains begin and again 4 weeks later.

Cherry (Sweet): Dead Bud, Bacterial Canker (Pseudomonas Syringae) – Prepare a 12-12-100 Bordeaux. Apply at leaf fall and again in late winter before buds begin to swell. In wet cool Northwest U.S. winters, a third spray may be needed between above sprays.

Cherry (Sour): Leaf Spot – Prepare a 10-10-100 Bordeaux. Apply as a full coverage spray after petal fall or as recommended by the State Extension Service.

CITRUS

(NOTE: Adding foliar nutritionals to spray mixtures containing Copper Sulfate Crystals or other products and applying to citrus during the post-bloom period when young fruit is present may result in spray burn.)

Bacterial Blast – Prepare a 10-10-100 Bordeaux spray and apply a spray in late October to early November or before fall rains begin. Make a complete coverage spray using 10 to 25 gals per mature tree.

Lemon, Orange, Grapefruit: Phytophthora Brown Rot - Prepare a 3-4.5-100 Bordeaux mixture only where there is no history of copper injury or use a 3-2-6-100 (Zinc Sulfate-Copper Sulfate Crystals-Hydrated Lime-Gallons of water) Bordeaux mixture. Spray 6 gals on skirt of tree 3 to 4 ft high and 2 to 4 gals on trunk and ground under tree. If P. hibernalis is present, use 10 to 25 gals to completely cover each tree. Apply in November or December just before or after first rain. In severe brown rot season, apply second application in January or February.
Lemon, Orange, Grapefruit: Septoria Fruit, Leaf Spot;Central California – Brown Rot, Zinc, Copper Deficiencies – Prepare a 3-2-6-100 Bordeaux mixture (Zinc Sulfate-Copper Sulfate Crystals-Hydrated Lime Gallons of water) and use 10 to 25 gals to completely cover each tree. Apply in October, November or December before or just after first rain.

Grape: **Downy Mildew** – Prepare and apply a 2-6-100 Bordeaux spray beginning when downy mildew is detected. Repeat as needed to achieve and maintain control. This mixture and its use will exhibit some phytotoxicity on most varieties.

Grape (Dormant): Powdery Mildew – Apply in spring before bud-swell and before any green tissue is present. Use 4 to 8 lbs of Copper Sulfate Crystals per 100 gals of water. Apply in a high volume spray of 300 gals water per acre. Direct spray to thoroughly wet the dormant vine, especially the bark of the trunk, head or cordons.

Olive: Olive Leaf Spot (Peacock spot), Olive Knot – Prepare a 10-10-100 Bordeaux and apply up to 500 gals per acre. Apply in autumn before heavy winter rains to prevent peacock spot. In wet winters, a repeat spray may be needed in mid-winter. In areas with less than 10 inches of annual rainfall, a 5-5-100 Bordeaux applied in up to 500 gals per acre may be used. To help protect against olive knot, apply a 10-10-100 Bordeaux before heavy rains and again in the spring. Injury may occur in areas of less than 10 inches of rainfall.

Peach: Leaf Curl – Prepare a 10-10-100 Bordeaux and apply at leaf fall or as a dormant spray in late fall or early spring before buds begin to swell.

Potatoes: **To enhance vine-kill and suppress late blight**, apply 10 lbs. per acre in 10 to 100 gals of water (ground equipment) or in 5 to 10 gals (aerial equipment) with Diquat at vine-kill to enhance vine desiccation and suppress late blight. Additional applications can be made with Diquat if needed to within 7 days of harvest. Copper Sulfate Crystals may be applied alone until harvest to suppress late blight. NOTE: This product can be mixed with Diquat for use on potatoes in accordance with the most restrictive of label limitations and precautions. No label dosage rates should be exceeded.

Walnuts: Walnut Blight – Apply 15 lbs with 10 lbs of lime in 100 gals of water. Make application in early pre-bloom before catkin blooms are showing (10-20% pistilate) before or after rain. Use only if Bordeaux mixture has been shown to be non-phytotoxic in your area. If desired, add one-half gal summer oil emulsion per 100 gals of water. **NOTE**: Addition of summer oil emulsion to pre-bloom and early bloom sprays may result in plant injury.

GENERAL CHEMIGATION INSTRUCTIONS

Apply this product only through one or more of the following types of systems: sprinkler including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or hand move irrigation system(s). Do not apply this product through any other type of irrigation system. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from nonuniform distribution of treated water. If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts. Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place. A person knowledgeable of the chemigation system and responsible for its operation or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Posting of areas to be chemigated is required when 1) any part of a treated area is within 300 feet of sensitive areas such as residential area, labor camps, businesses, day care centers, hospitals, in-patient clinics, nursing homes or any public areas such as schools, parks, playgrounds, or other public facilities not including public roads, or 2) when the chemigated area is open to the public such as golf courses or retail greenhouses. Posting must conform to the following requirements Treated areas shall be posted with signs at all usual points of entry and along likely routes of approach from the listed sensitive areas. When there are no usual points of entry, signs must be posted in the corners of the treated areas and in any other location affording maximum visibility to sensitive areas. The printed side of the sign should face away from the treated area towards the sensitive area. The signs shall be printed in English. Signs must be posted prior to application and must remain posted until foliage has dried and soil surface water has disappeared. Signs may remain in place

indefinitely as long as they are composed of materials to prevent deterioration and maintain legibility for the duration of the posting period. At the top of the sign shall be the words "KEEP OUT", followed by an octagonal stop sign symbol at least 8 inches in diameter containing the word "STOP". Below the symbol shall be the words "PESTICIDES IN IRRIGATION WATER". All words shall consist of letters at least 2 ½ inches tall, and all letters and the symbol shall be a color that sharply contrasts with their immediate background. This sign is in addition to any sign posted to comply with the Worker Protection Standard.

CHEMIGATION SYSTEMS CONNECTED TO PUBLIC WATER SYSTEMS:

Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into the reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the flow outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump. The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
See Treatment Instructions, below.

SPRINKLER CHEMIGATION:

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock. The system must contain a functional check valve, vacuum relief valve, and low pressure drain approximately located on the irrigation pipeline to prevent water source contamination from backflow. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump. This pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

TREATMENT INSTRUCTIONS:

Do not apply when wind speed favors drift beyond the area intended for treatment. When mixing, fill nurse tank half full with water. Add Copper Sulfate Crystals slowly to tank while hydraulic or mechanical agitation is operating and continue filling with water. Stickers, spreaders, insecticides, nutrients, etc. should be added last. If compatibility is in question, use the compatibility jar test before mixing a whole tank. Because of the wide variety of possible combinations which can be encountered, observe all cautions and limitations on the label of all products used in mixtures. Copper Sulfate Crystals should be added through a traveling irrigation system continuously or at the last 30 minutes of solid set or hand moved irrigation systems. Agitation is recommended.

NOTICE: CHEM ONE LTD. warrants that this product conforms to the chemical description on the label thereof and is reasonably fit for purposes stated on such label only when used in accordance with directions under normal use conditions. It is impossible to eliminate all risks inherently associated with use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application, all of which are beyond the control of CHEM ONE LTD. To the extent consistent with applicable law, CHEM ONE LTD.shall not be liable for consequential, special or indirect damages resulting from the use or handling of this product. To the extent consistent with applicable law, all such risks shall be assumed by the Buyer. To the extent consistent with applicable law exclusive remedy of any buyer or user of this product for any and all losses, injuries, or damages resulting from or in any way arising from the use, handling or application of this product, whether in contract, warranty, tort, negligence, strict liability or otherwise, shall not exceed the purchase price paid for this product or at CHEM ONE LTD.'s election, the replacement of this product. CHEM ONE LTD. MAKES NO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

CHEM ONE LTD.
14140 Westfair East Drive
HOUSTON, TEXAS - **77041**
TEL: (713) 896-9966

ENVIRONMENTALLY HAZARDOUS SUBSTANCES
SOLID, N.O.S. (CUPRIC SULFATE) UN3077, RQ

Revisions---

Revised 3-22-06 by notification to restore original language to Specific Instructions---control algae in irrigation conveyance systems
1-31-2006 Bordeaux, storage and disposal, Florida septic systems---changes and additions (Bordeaux) are indicated

Jan 29 2008- remove the 1-800- CLEANUP statement
6-16-08- storage and disposal revide following Pr 2007-4 instructions
6-17-08 Change weight from 22.7 kilos to 22.68 kilos
7-25-08 warranty statement notification
10-29-08- address change for January 2009
06-08-10 add rigid container residue disposal directions

Quimag Quimicos Aguila Copper Sulfate Crystal

☐ GRANULAR ☐ MEDIUM ☐ LARGE ☐ BRIQUETTE

Active Ingredient:

Copper Sulfate Pentahydrate*†	99.00%
Other Ingredients	1.00%
Total:	100.00%

* Metallic copper equivalent 25.2% †CAS No. 7758-99-8

- Algae Control in Impounded Waters, Lakes, Ponds, and Reservoirs
- Algae and Pondweed Control in Irrigation Conveyance Systems
- Control Root Growth in Sewers
- Wood Treatment to Prevent Fungus, Decay and Rot
- Treatment of Schistosome-infected fresh water snails
- Algae and Tadpole shrimp control in rice fields
- Fungus control in various crops as Bordeaux mixture
- Vine kill in potatoes

KEEP OUT OF REACH OF CHILDREN

DANGER - PELIGRO

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.
(If you do not understand the label, find someone to explain it to you in detail.)
See back panel for additional precautionary statements

FIRST AID	
If In Eyes	• Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for further treatment advice.
If Swallowed	• Call poison control center or doctor for treatment advice. • Do not induce vomiting unless told to do so by the poison control center or doctor. • Have person sip a glass of water if able to swallow. • Do not give anything by mouth to an unconscious person.
If On Skin Or Clothing	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for further treatment advice.
If Inhaled	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. • Call poison control center or doctor for treatment advice.

HOT LINE NUMBER

Have the product container or label with you when calling a poison control center, doctor, or going for treatment. For emergency information concerning this product, call the National Pesticides Information Center (NPIC) at 1-800-858-7378 Monday through Friday, 7:30 AM to 3:30 PM Pacific Time (NPIC web site: www.npic.orst.edu).

Note to Physician: Probable mucosal damage may contraindicate the use of gastric lavage. Product causes eye irritation.

See side/back panels for additional precautionary statements

EPA Reg No. 73385-1 Net Contents: 50 lbs. (22.68 kg) EPA Est. No. 073385-MEX-001

PRECAUTIONARY STATEMENTS
HAZARD TO HUMANS AND DOMESTIC ANIMALS
DANGER

Corrosive. Causes irreversible eye damage. May be fatal if swallowed. Do not get in eyes, or on clothing.

For applications in waters destined for use as drinking water, those waters must receive additional and separate potable water treatment. Do not apply more than 1.0 ppm as metallic copper in these waters.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Mixers, loaders, applicators and other handlers must wear:
- Long-sleeved shirt and long pants
- Chemical resistant gloves made of any waterproof material such as polyethylene or polyvinyl chloride
- Shoes plus socks
- Goggles or faceshield.

Some materials that are chemical resistant to this product are: polyethylene, polyvinyl chloride, barrier-laminate, and butyl, nitrile, neoprene, and natural rubber. If you want more options, follow the instructions for category A on an EPA chemical resistance category selection chart.

Discard clothing and other absorbent material that have been drenched or heavily contaminated with liquid from this product. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

USER SAFETY RECOMMENDATIONS

Users should: wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

For Terrestrial Use

This pesticide is toxic to fish and aquatic invertebrates and may contaminate water through runoff. This product has a potential for runoff for several months or more after application. Poorly draining soils and soils with shallow water tables are more prone to produce runoff that contains this product. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas.

Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash-waters or rinsate.

For Aquatic Use

This pesticide is toxic to fish and aquatic invertebrates. Waters treated with this product may be hazardous to aquatic organisms. Treatment of aquatic weeds and algae can result in oxygen loss from decomposition of dead algae and weeds. This oxygen loss can cause fish and invertebrate suffocation. To minimize this hazard, do not treat more than ½ of the water body to avoid depletion of oxygen due to decaying vegetation. Wait at least 14 days between treatments. Begin treatment along the shore and proceed outwards in bands to allow fish to move into untreated areas. Consult with the State or local agency with primary responsibility for regulating pesticides before applying to public waters, to determine if a permit is required.

Certain water conditions including low pH (≤6.5), low dissolved organic carbon (DOC) levels (3.0 mg/L or lower), and "soft" waters (i.e., alkalinity less than 50 mg/L), increases the potential acute toxicity to non-target aquatic organisms.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers, other persons, adults, children, or pets either directly or through drift. Only protected handlers may be in the area during application. For requirements specific to your State or Tribe, consult the State or Tribe agency responsible for pesticide regulations.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, greenhouses and handlers of agricultural insecticides. It contains requirements for training, decontamination, notification and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours for greenhouse uses or 48 hours for all other agricultural uses.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water is:

- Coveralls
- Chemical resistant gloves made of any waterproof material
- Shoes plus socks
- Protective eyewear

For at least seven days following the application of copper-containing products in greenhouses:

- at least one container or station designed specifically for flushing eyes is available in operating condition with the WPS-required decontamination supplies for workers entering the area treated with copper-containing products,
- workers are informed orally, in a manner they can understand:
    - that residues in the treated area may be highly irritating to their eyes,
    - that they should take precautions, such as refraining from rubbing their eyes, to keep the residues out of their eyes,
    - that if they do get residues in their eyes, they should immediately flush their eyes with the eye flush container for eye flush station that is located with the decontamination supplies, and
    - how to operate the eye flush container or eye flush station.

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

For application as a liquid: Do not enter or allow others to enter the treated area until sprays have dried.

For application as a solid: Do not enter or allow others to enter the treated area until dusts have settled.

SPRAY DRIFT MANAGEMENT

A variety of factors including weather conditions (e.g., wind direction, wind speed, temperature, relative humidity) and method of application (e.g., ground, aerial, airblast, chemigation) can influence pesticide drift. The applicator must evaluate all factors and make appropriate adjustments when applying this product.

Droplet Size
Apply only as a medium or coarser spray (ASAE standard 572) or a volume mean diameter of 300 microns or greater for spinning atomizer nozzles.

Wind Speed
Do not apply at wind speeds greater than 15 mph. Only apply this product if the wind direction favors on-target deposition (approximately 3 to 10 mph), and there are no sensitive areas within 250 feet downwind.

Temperature Inversions
If applying at wind speeds less than 3 mph, the applicator must determine if a) conditions of temperature inversion exist, or b) stable atmospheric conditions exist at or below nozzle height. Do not make applications into areas of temperature inversions or stable atmospheric conditions.

Other State and Local Requirements
Applicators must follow all state and local pesticide drift requirements regarding application of copper compounds. Where states have more stringent regulations, they must be observed.

Equipment
All aerial and ground application equipment must be properly maintained and calibrated using appropriate carriers or surrogates.

For Aerial Applications:
The boom length must not exceed 75% of the wingspan or 90% of the rotor blade diameter.

Release spray at the lowest height consistent with efficacy and flight safety. Do not release spray at a height greater than 10 feet above the crop canopy unless a greater height is required for aircraft safety.

When applications are made with a crosswind, the swath must be displaced downwind. The applicator must compensate for this displacement at the up and downwind edge of the application area by adjusting the path of the aircraft upwind.

For Groundboom Application:

Do not apply with a nozzle height greater than 4 feet above the crop canopy.

COMPATIBILITY WITH APPLICATION EQUIPMENT

When preparing a copper sulfate solution in water, it is best that the mixing container be made of glass or plastic or if a metal container is used, that it either be painted, enameled or copper-lined. The use of a galvanized container causes a chemical reaction to take place by which copper displaces the galvanized coating of the container.

This product may be reactive on metal and masonry surfaces such as galvanized roofing. Avoid contact with metal surfaces. Do not spray on cars, houses, lawn furniture, etc.

It must be determined if proper application equipment is available and if waste associated with its use can be properly handled. Agricultural chemicals are often reactive with the materials used in the construction of application equipment, such as aluminum, rubber and synthetic materials. This factor should be taken into consideration when selecting proper application equipment. It is necessary that all application equipment be thoroughly flushed with clean water after each day's use.

CALCULATIONS FOR THE AMOUNT OF WATER IMPOUNDED AND FOR THE AMOUNT OF COPPER SULFATE CRYSTAL TO BE USED IN IMPOUNDED AND FLOWING WATER

Calculate water volume as follows:

1. Obtain surface area by measuring regular shaped ponds or mapping of irregular ponds or by reference to previously recorded engineering data or maps.
2. Calculate average depth by sounding in a regular pattern and taking the mean of these readings or by reference to previously obtained data.
3. Multiply surface area in feet by average depth in feet to obtain cubic feet of water volume.
4. Multiply surface area in acres by average depth in feet to obtain total acre-feet of water volume.

Calculate weight of water to be treated as follows:

1. Multiply the volume in cubic feet by 62.44 to obtain total pounds of water, or
2. Multiply the volume in acre feet by 2,720,000 to obtain pounds of water

Calculations of the amount of Copper Sulfate Crystal to be applied:

To calculate the amount of Copper Sulfate Crystal that will be required to achieve the specified concentration of dissolved copper, multiply the weight of water by the desired concentration of dissolved copper and divide the result by 0.252, the concentration of copper in Copper Sulfate Crystal. For instance, the following calculates that amount of Copper Sulfate Crystal that will be required to cause a one part per million increase in the concentration of dissolved copper in one acre foot of water:

$$\frac{\frac{1\ lb\ copper}{1{,}000{,}000\ lb\ water} \times 1\ acre\ foot\ water \times \frac{2{,}720{,}000\ lb\ water}{1\ acre\ foot\ water}}{\frac{0.252\ lb\ copper}{1\ lb\ Copper\ Sulfate\ Crystal}} = 10.7\ lb\ Copper\ Sulfate\ Crystal$$

Calculation of water flow in ditches, streams, and irrigation systems:

The amount of water flow in cubic feet per second is found by means of a weir or other measuring device.

NOTE: If treated water is to be used as potable water (after further treatment), the residual metallic copper content must not exceed 1.0 ppm (4 ppm Copper Sulfate Crystal).

AQUATIC ALGAE AND WEED CONTROL

Copper Sulfate Crystal can be used in Slow Moving or Quiescent Bodies of Water, including: Lakes, Potable Water Reservoirs; Golf, Farm, Fish and Fire Ponds; Fish Hatcheries; and Crop and Non-Crop Irrigation Conveyance Systems, Ditches, Canals and Laterals.

Copper Sulfate Crystal effectively controls many species of both filamentous (mat forming green) and planktonic (single cell blue-green) algae.

Use Copper Sulfate Crystal as noted below. When using Copper Sulfate Crystal to control algae, there are many factors to consider: water hardness; temperature of the water; kind and amount of vegetation to be controlled; and the amount of water flow.

Algae can be controlled more easily and effectively if treatment with Copper Sulfate Crystal is made soon after plant growth has started. Small amounts of copper sulfate can effectively control algae in water. However, if treatment is delayed until a large amount of algae is present, larger quantities of copper sulfate may be required. Control of algae in water systems is not always permanent. Usually algae are more difficult to control with copper sulfate when water temperatures are low. The dose rates recommended for copper sulfate are required in hard water. Normally, larger quantities of copper sulfate will be required to kill algae in water which is flowing than in a body of stagnant water. If possible, curtail the flow of water before treatment and hold dormant for approximately three days after treatment or until the plants have begun to die. It is usually best to treat algae on a sunny day when the heavy mats of filamentous algae are most likely to be floating on the surface where they can be sprayed directly. If there is some doubt about the concentration to apply, it is generally best to start with a lower concentration and to increase this concentration until the algae are killed.

LAKES, POTABLE WATER RESERVOIRS, PONDS (Golf, Farm, Fish and Fire), FISH HATCHERIES, AND CROP AND NON-CROP IRRIGATION CONVEYANCE SYSTEMS, DITCHES, CANALS AND LATERALS: Copper Sulfate Crystal kills filamentous and planktonic algae in water. Apply at a rate of 3 to 6 pounds per acre foot of water (0.29 ppm to 0.58 ppm copper in the treated water). Apply as a uniform surface spray dissolved in at least 3 to 5 gallons of water using boat, plane or other pressurized spray device. Apply twice yearly or as needed. Determine the number of acre feet of water to be treated. An acre foot of water is equal to one acre of water one foot deep which equals 328,000 gallons or 2,720,000 pounds.

How to Apply: Copper Sulfate Crystal can be applied to impounded water by the following methods:

1. **Application by Dragging Under Water:** Calculate the quantity of Copper Sulfate Crystal required. Place Copper Sulfate Crystal in a burlap or finer mesh bag. Drag the bag attached to a boat or float so that the bag is suspended in the top foot of water. Drag the bag of Copper Sulfate Crystal first near the shoreline and continue outward by moving in parallel lines about 20 to 100 feet apart until the entire area to be treated has been covered. Continue treating the area until all of the Copper Sulfate Crystal has dissolved. Do not treat more than one half of the body of water at one time.

2. **Application by Spraying Solution on Water Surface:** Dissolve the minimum required dose of Copper Sulfate Crystal in water and spray the solution uniformly over the body of water. When spraying a solution of copper sulfate, mix copper sulfate in sufficient water to thoroughly spray the water surface. While the volume per surface acre depends on the type of spray equipment being used, spray volume should be approximately 20 to 500 or more gallons per acre of surface water. Several types of solutions and spraying equipment may be used. Observe previous cautions on the effect of copper sulfate solution on various metals in spraying containers.

3. **Application by Slug Method:** Make a dump of Copper Sulfate Crystal into the irrigation ditch or lateral at ¼ to 2 pounds per cubic foot per second of water per treatment. Repeat about every 2 weeks as needed. A dump is usually necessary every 5 to 30 miles depending on water hardness, alkalinity, and algae concentration. Copper sulfate becomes less effective as the bicarbonate alkalinity increases. Its effectiveness is significantly reduced when the bicarbonate alkalinity exceeds about 150 ppm as calcium carbonate ($CaCO_3$). Do not exceed 4 ppm Copper Sulfate Crystal (1 ppm metallic copper).

4. **Application by Broadcasting:** Dry Copper Sulfate Crystal can be broadcast on the water surface using a properly equipped boat. An air blower can be used to discharge these crystals at a specific rate over the surface of the water. When using this method, the wind direction is an important factor. Do not use this method unless completely familiar with this type of application.

5. **Application by Spraying from Airplanes and Helicopters:** Professional personnel licensed by the State Agricultural Extension Service are allowed to apply dry Copper Sulfate Crystal in some states. Rate may not exceed 6 pounds of Copper Sulfate Crystal per acre foot of water.

6. **Application by Injection in Water:** A solution can be made with Copper Sulfate Crystal that can be injected in the water via a piping system.

CROP AND NON-CROP IRRIGATION CONVEYANCE SYSTEMS, DITCHES, CANALS AND LATERALS: Copper Sulfate Crystal controls the *Potamogeton* pondweeds, leafy and sago.

How to Apply: Copper Sulfate Crystal can be applied to **irrigation conveyance systems** by the following methods:

1. **Continuous Application Method:** Using a continuous feeder, apply 1.6 to 2.4 pounds of product per day for each cubic foot per second of water flow rate. These rates will produce 0.074 to 0.11 ppm copper in the treated water.

   Note: For best control of leafy and sago pondweed, it is essential to begin copper sulfate additions when water is first turned into the system or ditch to be treated and continue throughout the irrigation season. Copper sulfate becomes less effective as the bicarbonate alkalinity increases. Its effectiveness is significantly reduced when the bicarbonate alkalinity exceeds about 150 ppm as calcium carbonate ($CaCO_3$). Should copper sulfate fail to control pondweeds satisfactorily, it may be necessary to either treat the ditch with a suitable approved herbicide or use mechanical means to remove excess growth. In either case, resume copper sulfate addition as soon as possible.

2. **Slug Application Method:** Make a dump of Copper Sulfate Crystal into the irrigation ditch or lateral at ¼ to 2 pounds per cubic foot per second of water per treatment. Repeat about every 2 weeks as needed. A dump is usually necessary every 5 to 30 miles depending on water hardness, alkalinity, and algae concentration. Copper sulfate becomes less effective as the bicarbonate alkalinity increases. Its effectiveness is significantly reduced when the bicarbonate alkalinity

exceeds about 150 ppm as calcium carbonate ($CaCO_3$). Do not exceed 4 ppm Copper Sulfate Crystal (1 ppm metallic copper).

COPPER SULFATE REQUIRED FOR THE TREATMENT OF DIFFERENT GENERA OF ALGAE: The genera of algae listed below are commonly found in waters of the United States. The lower recommended rate should be used in soft waters (less than 50 ppm methyl orange alkalinity) and the higher concentration in hard waters (above 50 ppm alkalinity). Always consult State Fish and Game Agency before applying this product to municipal waters. Do not exceed 0.4 ppm copper (1.6 ppm Copper Sulfate Crystal) if fish are present.

	Copper Sulfate Crystal Rates			
ORGANISM	**¼ to ½ ppm***	**½ to 1 ppm***	**1 to 1 ½ ppm***	**1 ½ to 2 ppm***
Cyanophyceae (Blue-green)	Anabaena Anacystis Aphanizomenon Gloeotrichia Gomphosphaeria Polycystis Rivularia	Cylindrospermum Oscillatoria Plectonema	Nostoc Phormidium	Calothrix Symploca
Chlorophyceae (Green)	Closterium Hydrodictyon Spirogyra Ulothrix	Botryococcus Cladophora Coelastrum Draparnaldia Enteromorpha Gloeocystis Microspora Tribonema Zygnema	Chlorella Crucigenia Desmidium Golenkinia Oocystis Palmella Pithophora Staurastrum Tetraedon	Ankistrodesmus Chara Nitella Scenedesmus
Diatomaceae (Diatoms)	Asterionella Fragilaria Melosira Navicula	Gomphonema Nitzschia Stephanodiscus Synedra Tabellaria	Achnanthes Cymbella Neidium	
Protozoa (Flagellates)	Dinobryon Synura Uroglena Volvox	Ceratium Cryptomonas Euglena Glenodinium Mallomonas	Chlamydomonas Hawmatococcus Peridinium	Eudorina Pandorina

* ¼ - ½ ppm = 0.67 - 1.3 lbs/acre ft. Copper Sulfate Crystal
* ½ - 1 ppm = 1.3 - 2.6 lbs/acre ft. Copper Sulfate Crystal
*1 ½ ppm = 2.6 - 3.9 lbs./acre ft. Copper Sulfate Crystal
*1 ½ - 2 ppm = 3.9 – 5.32 lbs./acre ft. Copper Sulfate Crystal
NOTE: Do not exceed 0.4 ppm copper if fish are present.

SEWAGE LAGOONS AND PITS: Application rates may vary depending on amounts of organic matter in effluent stream or retention ponds. Use 2 lbs. of Copper Sulfate Crystal in 60,000 gals. (8,000 cu. ft.) of effluent to yield 1 ppm of dissolved copper. Dose levels may vary depending upon organic load. Other Organic Sludges: Copper Sulfate Crystal solution must be thoroughly mixed with sludge. Dissolve 2 lbs. in 1-2 gals. of water and apply to each 60,000 gals. of sludge.

Useful formulas for calculating water volume flow rates: Multiply the water volume in cu. ft. times 7.5 to obtain gallons.
Note: 1 C.F.S./Hr. = 27,000 Gals. 1 Acre Foot = 326,000 Gals.

CONTROL OF ALGAE AND BACTERIAL ODOR IN SWIMMING POOLS: Apply 1 to 2 lbs. of Copper Sulfate Crystal per 60,000 gals. (8,000 cu. ft.) of water. This will result in a concentration of 0.5 to 1.0 ppm of dissolved copper. Dissolve the required amount of copper sulfate in a plastic container and pour the solution into the pool. Use the higher rate where visible algae are present. For maintenance dosages, use the lower rate. Repeat the lower rate to control the recurrence of algae and avoid the buildup of copper. Copper Sulfate Crystal may be used to help control pool odors and algae during the winter months. Apply the higher rate while the pool is not being used during the winter. Treated pool effluent should not be discharged where it will drain into lakes, streams, ponds, or public water.

CONTROL OF ALGAE AND BACTERIAL ODOR IN WATERSCAPES, DECORATIVE POOLS, AND FOUNTAINS: Apply in the spring or early summer when algae and bacteria first appear. The dosages are variable and depend upon algae/bacteria species, water hardness, water temperature, amount of algae and bacteria present as well as whether the water is clear, turbid, flowing or static. Preferably, the water should be clear with temperatures above 60° F. Higher dosages are required at lower water temperatures, higher algae and bacteria concentrations and for hard waters. For each 7,500 gals. of water, dissolve ¼ lb. Copper Sulfate Crystal in one gallon of water. Pour the solution into the water to be treated. Several application points speed up dispersal. Static water requires less chemical than does flowing water. If uncertain about the dosage, begin with a lower does and increase until control is achieved or until the maximum allowable level of copper has been reached. Do not exceed 0.4 ppm copper (0.1 lb Copper Sulfate Crystal per 7,500 gallons of water) if fish are present.

CONTROL OF ALGAE AND TADPOLE SHRIMP IN RICE FIELDS (DOMESTIC AND WILD)

Algae: After the rice field has been flooded to a depth of 3 inches apply 2.7 pounds of Copper Sulfate Crystal per acre. Adjust the rate according to the average water depth. Do not exceed a concentration of 1.0 ppm copper in the water.

Tadpole Shrimp: After the rice field has been flooded to a depth of 3 inches apply 4 to 6.5 pounds of Copper Sulfate Crystal per acre at the first sign of infestation by tadpole shrimp. Adjust the rate according to the average water depth. Do not exceed a concentration of 2.5 ppm copper in the water.

SEWER TREATMENT - ROOT DESTROYER**

GENERAL INFORMATION: Roots of shrubbery and trees growing near sewer lines frequently penetrate sewer lines in search of moisture and nutrients, even through extremely small cracks, holes, or poorly sealed joints. These tiny root hairs, if not controlled, will continue to grow both in diameter and number, causing tile breakage, gradual reduced flow, and frequently flow stoppage. Copper sulfate has successfully controlled roots for over 50 years in residential and commercial sewers.

Not for sale or use in the California counties of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma for root control in sewers.

To control root growth in Commercial, Institutional, and Municipal Sewers use as follows:

SEWERS: Use 2 pounds of Copper Sulfate Crystal every 6 to 12 months, applied into each junction or terminal manhole as a preventative measure. Add copper sulfate during periods of reduced flow; however, some flow is essential. If reduced flow due to root masses is observed, but flow has not completely stopped, add the copper sulfate in the next manhole above the reduced flow area. If completely blocked, use a rod to penetrate the mass so some flow begins before treatment.

STORM DRAINS: Use 2 pounds of Copper Sulfate Crystal per drain per year. Apply during a period of light water flow. In dry weather, introduce a flow with a hose. If storm drains become almost plugged, repeat treatment 3 or 4 times at 2-week intervals.

SEWER PUMPS AND FORCE MAINS: Place 2 pounds of Copper Sulfate Crystal in a cloth bag at the storage well inlet. Minimum retreatment interval 6 months.

To control root growth in Residential or Household Sewer Systems use as follows:

Make treatment when the reduced flow rate thought to be caused by root growth is first noticed. Do not delay until stoppage has occurred because some flow is needed to move Copper Sulfate Crystal to root growth. When roots accumulate sufficient copper sulfate to cause death, root decay will begin and flow rate should increase in 3 to 4 weeks. Since copper sulfate treatment usually kills only those roots in the pipe, roots will regrow, requiring follow-up treatments. Generally make a treatment in the spring after plants begin to grow, with a second treatment during late summer or early fall each year, and/or any time when reduced flow possibly caused by root growth is noted.

HOW TO USE COPPER SULFATE CRYSTALS: In household sewers use 2 pounds of crystals twice yearly. Add Copper Sulfate Crystal to sewer line by pouring about ½ pound into the toilet bowl nearest to the sewer line and flush, repeating process until recommended dose has been added, or remove cleanout plug and pour entire recommended quantity directly into the sewer line, replacing plug and flush toilet several times. Do not attempt to flush Briquette size down the toilet as blockage may result.

If system is equipped with a septic tank, copper sulfate will be precipitated in the septic tank and little will pass into the absorption drain field. To treat drain field pipes, add 2 to 6 pounds of Copper Sulfate Crystal to distribution box located between the septic tank and the drain field. If distribution box does not have an opening, it would be advisable to install a cleanout plug opening into the outlet pipe from the septic tank leading to the drain field for effective root control in the drain field pipes.

NOTE: Do not apply Copper Sulfate Crystal through sink or tub drains as it will corrode those metal drains.

NOTE: Laboratory studies have shown that copper sulfate added to an active 300 gallon septic tank at 2, 4 and 6 pounds per treatment temporarily reduced bacterial action, but it returned to normal 15 days after treatment. Trees and shrubbery growing near a treated line normally will have only a small portion of their roots in contact with the copper sulfate that primarily kills only those roots inside the pipe, thus not affecting the growing plants.

****Do not use as a sewer additive where prohibited by State law. State law prohibits the use of this product in sewage systems in the State of Connecticut.**

WOOD TREATMENT
(Green Material)

Prepare a solution of sodium dichromate, sodium dichromate dihydrate or other registered inorganic wood treatment salt in accordance with label directions. Soak green material in this solution for up to 3 days. Prepare a solution of 18 to 36 pounds of Copper Sulfate Crystal in each 24 gallons of water (do not use more than 1.5 pounds per gallon of water); then soak the green material in the Copper Sulfate Crystal solution for up to three additional days, remove and rinse green material with clear water.

SCHISTOSOME-INFECTED FRESH WATER SNAILS

For recreational lakes, reservoirs, and ponds 1.5 ppm of copper (16 pounds of Copper Sulfate Crystal per acre foot), is usually sufficient for treatment of Schistosome-infected fresh water snails. Use surface area in acres multiplied by average depth in feet to determine water volume and application rate. Apply only along shoreline swimming areas and/or to infected snail beds on a calm sunny day when water temperature is at least 60° F. Not allowing swimming for at least 12 hours following treatment is recommended. A second application may be necessary, 10 to 14 days later. Apply by broadcast using boat, aircraft, or hand equipped with power or hand seeder or underwater dispenser. Do not exceed 1 ppm copper (4 ppm Copper Sulfate) in potable water systems. This labeling must be in the possession of the user at the time of pesticide application. **NOTE: In the state of New York**- For use in recreational lakes, reservoirs, and ponds ONLY in areas where infected snail beds have been identified. Apply medium grade crystals by hand broadcast method of application only. This product is a restricted use pesticide in New York State. Pesticide applicator certification or a special use permit is required for sale, possession, or use. Each individual treatment must be approved by the Department of Environment Conservation. Therefore, you must contact the Pesticide Control Specialist at the appropriate regional office of the Department 30 days in advance of the proposed treatment.

FERTILIZER RECOMMENDATIONS

Wisconsin State Copper Fertilizer Recommendations[a]

Crop	Pounds copper per Acre					
	Sands		Loams, silts, clays		Organic	
	Bdct[b]	Band	Bdct[b]	Band	Bdct[b]	Band
Lettuce, onion, spinach	10	2	12	3	13	4
Carrot, cauliflower, celery, alfalfa, clover, corn, oat, radish, sudan, grass, wheat	4	1	8	2	12	3
Asparagus, barley, beans, beet,	0	0	0	0	0	2

broccoli, mint, pea, potato, rye, soybean						

[a]Recommendations are for inorganic sources of copper. Copper chelates can also be used at 1/6 of the rates recommended above. Do not apply copper unless a deficiency has been verified by plant analysis.
[b]Bdct = broadcast

Washington and Oregon State Fertilizer Use

Information received by the Washington State Department of Agriculture regarding the components of this product is available on the internet at http://agr.wa.gov Information regarding the contents and levels of metals in this product is available at the Oregon Department of Agriculture internet site: http://oda.state.or.us/fertilizer

CROP USE DIRECTIONS

Bordeaux Mixtures

How to Understand Bordeaux Formulations - If the Bordeaux Mixture Instructions reads 10-10-100, the first figure means the number of pounds of Copper Sulfate Crystal. The second figure means the pounds of hydrated spray lime, and the third figure, the gallons of water to be used. Use as a full coverage spray to runoff.

How to Prepare a Bordeaux Mixture - To prepare a Bordeaux mixture, fill a tank with water, one quarter full. Then with agitator running, mix in Copper Sulfate Crystal through a copper, bronze, stainless steel or plastic screen. Add water so the tank is three quarters full. Mix in the hydrated spray lime through the screen and finish filling the tank with water.

CROP USE DIRECTIONS

Crop[1]: Pest	Season	Copper Mixture	Maximum Rate per Application: pounds Copper Sulfate Crystal per acre[2]	Maximum Rate per Year: pounds Copper Sulfate Crystal per acre [3]	Minimum Retreatment Interval	Use Notes

Crop[1]: Pest	Season	Copper Mixture	Maximum Rate per Application: pounds Copper Sulfate Crystal per acre[2]	Maximum Rate per Year: pounds Copper Sulfate Crystal per acre [3]	Minimum Retreatment Interval	Use Notes
Almonds, Apricots, Peaches, Nectarines: Shot Hole Fungus (Coryneum Blight)	Fall, Late Dormant	10-10-100 Bordeaux Mixture	32/ 320	71/ 710	7 Days	Apply as a dormant spray in late fall or early spring.
	Bloom, Growing Season (Early Spring)	10-10-100 Bordeaux Mixture	6.0/ 60	71/ 710	5 Days	
Almonds, Apricots, Cherries, Peaches, Nectarines, Plums, Prunes: Brown Rot Blossom Blight	Bloom, Growing Season (Spring)	10-10-100 Bordeaux Mixture	6.0/ 60	71/ 710	5 Days	Apply when buds begin to swell.
Peach: Leaf Curl	Late Fall, early Spring	10-10-100 Bordeaux Mixture	32/320	71/710	7 Days	Apply at leaf fall or as a dormant spray before buds begin to swell. If above sprays for Coryneum blight is made, peach curl will also be controlled.
Apples: Fireblight	Fall, Late Dormant	5 lbs of Copper Sulfate per 100 Gallons of Water	32/ 640	32/640	N/A (Only 1 application per season permitted)	Spray uniformly to the point of runoff. Apply in dormant only at silver tip stage. After silver tip, severe burn will occur on any exposed green tissue. Do not mix lime to make a Bordeaux spray for this treatment.
Bulbs (Lillies, Easter): Botrytis Blight		10-10-100 Bordeaux Mixture	10/ 100	298/ 2980[4]	7 Days	Apply as a foliar spray to one acre. Apply for thorough coverage beginning at the first sign of disease and repeat to control disease at 7 to 10 day intervals. Use the shorter intervals during periods of frequent rains or when severe disease conditions persist. Avoid spray just before flower cutting season if residues are a problem. Do not
Bulbs (Tulip, Gladiolus): Botrytis Blight		10-10-100 Bordeaux Mixture	8.0/ 80	80/ 800	7 Days	

Crop[1]: Pest	Season	Copper Mixture	Maximum Rate per Application: pounds Copper Sulfate Crystal per acre[2]	Maximum Rate per Year: pounds Copper Sulfate Crystal per acre [3]	Minimum Retreatment Interval	Use Notes
						apply any additional copper pesticide to this land for 36 months.
Cherries (Sweet): Dead Bud and Bacterial Canker (*Pseudo-monas syringae*)	Fall, Late Dormant	12-12-100 Bordeaux Mixture	32/ 267	71/ 592	7 Days	Apply at leaf fall and again in late winter before buds began to swell. In wet, cool Northwest U.S. winters, a third spray may be needed between above sprays.
Cherries (Sour): Leaf Spot	Fall, Late Dormant	10-10-100 Bordeaux Mixture	32/ 320	71/ 710	7 Days	Apply as a full coverage spray after petal fall or as recommended by State Extension Service.
	Bloom, Growing Season	10-10-100 Bordeaux Mixture	6.0/ 60	71/ 710	5 Days	
Grapes: Downy Mildew		2-6-100 Bordeaux Mixture	12/ 600	79/ 3950	3 Days	Spray beginning when downy mildew is detected. This mixture and its use will exhibit some phytotoxicity on most varieties.
Grapes, (Dormant): Powdery Mildew		4-8 lbs of Copper Sulfate 100 Gallons of Water	12/ 150-300	79/ 988-1975	3 Days	Apply in spring before bud-swell and before green tissue is present. Apply in a high volume spray of 300 gallons water per acre. Direct spray to thoroughly wet the dormant vine, especially the bark of the trunk, head, or cordons.
Olives: Peacock Spot and Olive Knot		10-10-100 Bordeaux Mixture[5]	12.5/ 125	25/ 250	30 Days	Apply in autumn before heavy winter rains to prevent peacock spot. To help protect against olive knot, apply before heavy rains and again in the spring. Injury may occur in areas of less than 10 inches of rainfall.
Walnuts: Walnut Blight		15 lbs. Copper Sulfate with 10 lbs. of	12.5/ 83	100/ 667	7 Days	Apply in early pre-bloom and at 10% to 20% pistillate (not when catkin blooms are showing) just before or after rain.

Crop[1]: Pest	Season	Copper Mixture	Maximum Rate per Application: pounds Copper Sulfate Crystal per acre[2]	Maximum Rate per Year: pounds Copper Sulfate Crystal per acre [3]	Minimum Retreatment Interval	Use Notes
		Lime in 100 Gallons of Water plus ½ Gallon Summer Oil Emulsion[6]				
Citrus: Bacterial Blast		10-10-100 Bordeaux Mixture[7]	12.5/ 125	50/ 500	7 Days	Apply a spray in late October to early November or before fall rains begin. Make a complete coverage spray using 10 to 25 gallons per mature tree.
Lemons, Oranges, Grapefruits: Phytophthora Brown Rot		3-4.5-100 Bordeaux Mixture [7,9]	12.5/ 420	50/ 1700	7 Days	Spray 6 gallons on skirt of tree 3 to 4 feet high, and 2 to 4 gallons on trunk and ground under the tree. If *Phytophthora hibernalis* is present, use 10 to 25 gallons to completely cover each tree. Apply in November or December just before or after first rain. In severe brown rot season apply second application in January or February.
		3-2-6-100 Bordeaux Mixture[7,8,9]	12.5/ 625	50/ 2500	7 Days	
Lemons, Oranges, Grapefruits: Septoria Fruit and Leaf Spot (Central California), Brown Rot, Zinc and Copper Deficiencies		3-2-6-100 Bordeaux Mixture[8,9]	12.5/ 625	50/ 2500	7 Days	Use 10 to 15 gallons to cover completely each tree. Apply in October, November or December just before or after rain.
Potato: Vine Kill (Ground Equipment)		10 lbs/ Acre in 10 to 100 Gallons of Water[10]	10/ 10-100	99.2/ 99-990	5 Days	To enhance vine-kill and suppress late blight, apply with Diquat at vine-kill to enhance vine desiccation and suppress late blight.

Crop[1]: Pest	Season	Copper Mixture	Maximum Rate per Application: pounds Copper Sulfate Crystal per acre[2]	Maximum Rate per Year: pounds Copper Sulfate Crystal per acre [3]	Minimum Retreatment Interval	Use Notes
Potato: Vine Kill (Aerial Equipment)		10 lbs/ Acre in 5 to 10 Gallons of Water[10]	10/ 5-10	99.2/ 49.5-990	5 Days	Additional applications can be made with Diquat if needed within 7 days of harvest. May be applied alone until harvest to suppress late blight.

[1]Additional Growing Season information provided where applicable.
[2] Maximum Copper Sulfate Crystal (lbs/Acre)/ Maximum Application Volume (Gallons)
[3]Maximum Copper Sulfate Crystal (lbs/Acre)/ Maximum Annual Volume (Gallons)
[4]Maximum pounds of Copper Sulfate Crystal which may be applied in a 12 month period. Do not apply any additional copper pesticide to this land for 36 months.
[5]In areas of less than 10 inches of annual rainfall, use a 5-10-100 Bordeaux mixture.
[6]Use only if Bordeaux mixture has been proven to be non-phytotoxic in your area.
[7]Apply where there is no history of crop injury.
[8]Zinc Sulfate- Copper Sulfate -Hydrated Lime-Gallons of water.
[9]Adding foliar nutritionals to spray mixtures containing Copper Sulfate or other products and applying to citrus during the post bloom period when young fruit is present may result in spray burn.
[10]Note: This product can be mixed with Diquat for use on potatoes in accordance with the most restrictive of label limitations and precautions. Do not exceed the label dosage rates.

GENERAL CHEMIGATION INSTRUCTIONS

Apply this product only through one or more of the following types of systems: sprinkler including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or hand move irrigation system(s). Do not apply this product through any other type of irrigation system. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water. If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts. Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place. A person knowledgeable of the chemigation system and responsible for its operation or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Posting of areas to be chemigated is required when 1) any part of a treated area is within 300 feet of sensitive areas such as residential areas, labor camps, businesses, day care centers, hospitals, in-patient clinics, nursing homes or any public areas such as schools, parks, playgrounds, or other public facilities not including public roads, or 2) when the chemigated area is open to the public such as golf courses or retail greenhouses. Posting must conform to the following requirements. Treated areas shall be posted with signs at all usual points of entry and along likely routes of approach from the listed sensitive areas. When there are no usual points of entry, signs must be posted in the corners of the treated areas and in any other location affording maximum visibility to sensitive areas. The printed side of the sign should face away from the treated area towards the sensitive area. The signs shall be printed in English. Signs must be posted prior to application and must remain posted until foliage has dried and soil surface water has disappeared. Signs may remain in place indefinitely as long as they are composed of material to prevent deterioration and maintain legibility for the duration of the posting period. At the top of the sign shall be the words "KEEP OUT", followed by an octagonal stop sign symbol at least 8 inches in diameter

containing the word "STOP". Below the symbol shall be the words "PESTICIDES IN IRRIGATION WATER". All words shall consist of letters at least 2 ½ inches tall, and all letters and the symbol shall be a color that sharply contrasts with their immediate background. This sign is in addition to any sign posted to comply with the Worker Protection Standard.

CHEMIGATION SYSTEMS CONNECTED TO PUBLIC WATER SYSTEMS:

Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. There shall be a complete physical break (air gap) between the flow outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump. The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down. See Treatment Instructions, below.

SPRINKLER CHEMIGATION:

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected. Systems must use a metering pump, such as a positive displacement injection pump (e.g. diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being filtered with a system interlock. The system must contain a functional check valve, vacuum relief valve, and low pressure drain approximately located on the irrigation pipeline to prevent water source contamination from backflow. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump. This pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the infection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being filtered with a system interlock.

TREATMENT INSTRUCTIONS:

Do not apply when wind speed favors drift beyond the area intended for treatment. When mixing, fill nurse tank half full with water. Add Copper Sulfate Crystal slowly to tank while hydraulic or mechanical agitation is operating and continue filling with water. Stickers, spreaders, insecticides, nutrients, etc. should be added last. If compatibility is in question, use the compatibility jar test before mixing a whole tank. Because of the wide variety of possible combinations which can be encountered, observe all cautions and limitations on the label of all products used in mixtures. Copper Sulfate Crystal should be added through a traveling irrigation system continuously or at the last 30 minutes of solid set or hand moved irrigation systems. Agitation is recommended.

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal. Open burning and dumping is prohibited. Do not reuse empty container.

Storage: Store product in a secure dry place. Keep product dry as product is water soluble. When opening, closing or handling open packages, or pouring product, wear goggles to prevent dusting into eyes. Spilled product should be swept up, used if clean, or disposed of according to the procedures below. Store product in original container. Store pesticide separately to prevent cross-contamination of other pesticides, fertilizers, food and feed.

Pesticide Disposal: Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container Disposal: (Paper Bag)

Nonrefillable container. Do not reuse or refill this container.

If empty: Offer for recycling if available. Do not reuse or refill this container. Dispose of empty bag in a sanitary landfill or by incineration, or if allowed by State and local authorities, by burning. If burned, stay out of smoke.

If partly filled: Call your local solid waste agency or 1-800-CLEANUP for disposal instructions. Never place unused product down any indoor or outdoor drain.

WARRANTY STATEMENT

FABRICA DE SULFATO EL AGUILA warrants that this product conforms to the chemical description on the label thereof and is reasonably fit for purposes stated on such label only when used in accordance with directions under normal use conditions. It is impossible to eliminate all risks inherently associated with use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application, all of which are beyond the control of FABRICA DE SULFATO EL AGUILA. To the extent permitted by applicable law, FABRICA DE SULFATO EL AGUILA shall not be liable for consequential, special or indirect damages resulting from the use or handling of this product. To the extent permitted by applicable law, all such risks shall be assumed by the Buyer. To the extent permitted by applicable law exclusive remedy of any buyer or user of this product for any and all losses, injuries, or damages resulting from or in any way arising from the use, handling or application of this product, whether in contract, warranty, tort, negligence, strict liability or otherwise, shall not exceed the purchase price paid for this product or at FABRICA DE SULFATO EL AGUILA's election, the replacement of this product. FABRICA DE SULFATO EL AGUILA MAKES NO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

Manufactured By:

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